application makes no sense if the subdocuments are copies of the master document in different formats.

The description of the document in Petrogiannis' 632 is encapsulated in a DAC, "a code assigned to a particular document that uniquely describes the content of that document" (Col 2, line 66). The term "digital signature" has a legal definition as discussed by the ABA tutorial, and the DAC as described in Petrogiannis' 632 Col 5 Line 61 lacks the essential linkage to the signer's private key. . (*Digital signatures use what is known as "public key cryptography," which employs an algorithm using two different but mathematically related "keys;" one for creating a digital signature or transforming data into a seemingly unintelligible form, and another key for verifying a digital signature or returning the message to its original form. Computer equipment and software utilizing two such keys are often collectively termed an "asymmetric cryptosystem."* ABA Digital Signature Guideline Tutorial http://www.abanet.org/scitech/ec/isc/dsg-tutorial.html) The only reference in Petrogiannis' 632 to signatures is in Col 1, lines 36-55, referring as prior art Kapp (US5195133) where a means of capturing a digital representation of a handwritten approving signature is described. **The DAC is not a digital signature** as understood by those of ordinary skill with the art (see also http://en.wikipedia.org/wiki/Digital_signature). The term "approval signature" in the Applicant's claims is defined in Section 0016 as a digital signature.

Petrogiannis' 660

The principle sections of Petrogiannis' 660 describe a process for the parallel approval of a document or sections of a document. (*An electronic document is issued for approval by a user at one point in time at some location. It can subsequently be accessed by other users, who can then electronically approve the documents simultaneously or serially.* Abstract) Several versions of the approval process are presented, illustrated by Figures 1 to 5 in Petrogiannis' 660. Figures 1 and 2 describe the approval by multiple users of a single document and can be clearly distinguished from the Applicant's use of multiple subdocuments. Petrogiannis' 660 Figures 3 and 4 describe the creation of a single document including multiple areas for parallel approval. Once a section is approved there is no provision provided for the removal of approval and editing. (*In this embodiment, each user is responsible for his own section, and may modify it* *before he approves it and a DAC x is generated.* Col 8, line 66) As can be seen from Applicant's Figures 2, 3 and 4, Applicant's method involves the creation of a single cover document which controls the controlled subsequent "creation, modification, signature generation and signature verification of subdocuments" (Section 17) which are independent objects created within the cover document or external to the cover document (Section 41). This is clearly shown in Applicant's Figures 2, 3 and 4 and is materially different in structure (the use of multiple documents) and sequence (the use of the cover document to subsequently create the multiple and independent subdocuments) from the process shown in Petrogiannis' 660 Figures 3 and 4.

Petrogiannis' 660 Figure 5 does show the use of a master document which incorporates approved electronic documents. Figure 5, however, clearly shows a sequence of first independently generating and independently approving individual documents and then subsequently incorporating into the master document the pre-approved electronic documents. (*Referring to FIGS 5, 5A and 5B, another option available to users is to approve multiple separate documents and then have them merged into one single approved document.* Col 9 Line 14) This is exactly opposite to the Applicant's method shown in Figures 2, 3 and 4 of first creating a cover document and using the cover document for the controlled subsequent "creation, modification, signature generation and signature verification of subdocuments" (Section 17) The cover document links to the originals of the subdocuments so that editing and modification can take place in the original subdocument and be reflected in the cover document. Note claim 1 also specifies that the access to the independent subdocuments is controlled by the cover document. Controlled access is normally accomplished by locking a file and controlling the unlocking of the file from the access source. The cover document contains a subdocument object linked to the subdocument, not a copy of the subdocument. This is a critical and very useful difference in that with Applicant's method the user is only presented with one document (the cover document) which is the only access to the creation, and modification of the subdocument forms. By controlling the approval process within the cover document and allowing the modification of the subdocuments, the Applicant's method allows editing (with automatic approval rejection) and re-approvals in a standard approval document format. This is a function that Petrogiannis' 660 specifically rejects. Figure 5B allows no merger into the master document if the approved document has been modified (DAC x not equal DAC 0), in which case the document is rejected to take external corrective action. Petrogiannis' 660 allows nowhere for editing or commenting within the master document of the merged approved document. Applicant's application specifies means for accomplishing this.

The following sections address individually the office action issues raised with regard to each individual claim.

Applicant agrees to the change to Claim 8 as expressed in 7 of the Office Action by replacing the "and" with a period. Applicant requests that objections as to form not necessary to further reconsideration be held in abeyance until allowable subject matter is indicated.

Claim Rejections – 35 USC § 102

Regarding Claim 1, Petrogiannis' 632 claims "A method of creating an authenticated verifiable electronic reproduction of an electronic master document while preserving the integrity and authenticity of said master document and said reproduction …". This patent is directed in Claim 1 to multiple copies of ***an*** electronic master document and all references are to a single document ("an electronic document", "the master document", "the document") and not to multiple linked unrelated subdocuments as described in Applicant's Claim 1. In Petrogiannis' 632 subsequent claims are all dependent on Claim 1 and therefore continue the limitation of reference to a single master document. Petrogiannis' 632 teaches a method of coordinating multiple authenticated copies of the single master document. The creation of the document is not addressed in Petrogiannis' 632. Modification of the document is prohibited in Petrogiannis' 632, and in fact this patent is for a method of detecting and rejecting modification of the document. (*...the method of the patent provides for an alert to the user at step 4 that the document has been altered and the reproduction process will be terminated at step 5.* Col 3 Line 17) The authentication is a document authentication code (DAC) that contains no reference to a signer's private key and therefore is materially different from digital signatures, a term which has been given legal meaning linking a signer to a document. (ABA Digital Signature Guideline Tutorial http://www.abanet.org/scitech/ec/isc/dsg-tutorial.html) Applicant's Claim 1 is clearly directed to the controlled creation, modification, digital signature generation and digital signature verification of linked multiple documents with no reference to the authentication of reproductions, and is therefore outside the scope of Petrogiannis' 632. The reference in Petrogiannis' 632 to linked documents is confined to one master and reproductions of that one master. (*Thus, the master document and the reproduced document exist as two separate and independent documents and each can be authenticated and verified separately.* Col 2 Line 64) The reference in Col 3 Lines 1-6 to a linked storage system specifically refer to the "DACm , audit trail ... and associated relevant information" representing relevant information to the master document and not to unrelated documents.

Therefore applicant submits that claim 1 is allowable over the cited references and solicits reconsideration and allowance.

Regarding Claim 3 and Claim 8 states that Petrogiannis' 632 teaches the creation of a cover document for the creation of subdocuments and for controlling the editing, and signature management of said subdocuments. Applicant's patent application refers to subdocuments which have no requirement that they be the same as the cover document. In fact the claimed invention would be meaningless if the subdocuments were reproductions of the cover document.

For the reasons explained above, Petrogiannis' 632 specifically is limited to a single master document and the method for obtaining authenticated reproductions of that single document. As the referenced claims in Applicant's patent application do not have the specific limitation of Petrogiannis' 632 to a single master document, Petrogiannis' 632 does not address the claimed methods of dealing with different subdocuments coordinated to a cover document. Even if the master document in Petrogiannis' 632 were considered to be the cover document in Applicant's claims, there is no discussion in Petrogiannis' 632 of any linkage to any other documents other than reproductions of that master document. The reference in Col 3 Lines 1-6 to a linked storage system specifically refer to the "DACm, audit trail … and associated relevant information" representing relevant information to the master document and not to unrelated documents. In this office action on page 8 line 8 the comment is made that "Petrogiannis' 632 fails to teach an approval signature; and providing protection to the integrity of the approval by either preventing the editing of subdocuments within the approval range for signed approval or destroying any approval whose approval range includes an edited statement". The DAC is not a digital signature as it does not contain any linkage to a signer's identity and there is no reference in Petrogiannis' 632 to an approval process. Editing of the document is prohibited in Petrogiannis' 632, and in fact this patent is for a method of detecting and rejecting modification of the document. (*…the method of the patent provides for an alert to the user at step 4 that the document has been altered and the reproduction process will be terminated at step 5.* Col 3 Line 17)

Therefore applicant submits that claims 3 and 8 are allowable over the cited references and solicits reconsideration and allowance.

Regarding Claim 9, Petrogiannis' 632 has no reference to subdocuments as there is only one master document and only copies of the master document are allowed (see previous discussions), and therefore there is no reference to parsing of subdocuments. Petrogiannis' 632 contains no reference to parsing.

Therefore applicant submits that claim 9 is allowable over the cited references and solicits reconsideration and allowance.

Regarding Claim 11, while Petrogiannis' 632 in Col 3, line1 to Col 3 line 59 does mention storing approval information and linking DACs, it does so in regards to a single master document and possibly reproductions of that master document. Applicant's Claim 11, however, has the limitations of Claim 1, which as elaborated above encompasses elements not found in Petrogiannis' 632, such as the linking of unique documents.

Therefore applicant submits that claim 11 is allowable over the cited references and solicits reconsideration and allowance.

Regarding Claim 16, Claim 17 and Claim 18, Petrogiannis' 660 nowhere discusses the insertion of comments, which differ from approval in that they need no authentication and may be removed. Applicant's claim 16 allows for the referencing and deletion of comments. Ordinary usage of the term "comment" is materially different from the usage of the term "approval signature", and approval of a "section" of a document is materially different from the ability to insert temporarily a comment. Comments refer to statements about a document which require no authentication and can be summarily removed. An approval signature, on the other hand, requires linkage to the signer and must be preserved. Petrogiannis' 660 has no references to the insertion of comments and the deletion of said comments. Applicant's claim 16 allows for the insertion of comments directed to an approval source and the deletion of these comments during the signature process. This allowed prior signers to note certain items in the document that they were approving without the comments becoming part of the document. This is a very useful feature and this capability appears nowhere in Petrogiannis' 660, particularly in Col 7, line 60 to Col 9 line 30 or claims 14-25. Col 6, line 35 states if the DACs of a document is changed (e.g. due to the insertion of comments) corrective action should be taken. Each reference in Petrogiannis' 660 to a modified document discusses the addition of the approval, not a comment (*Since the addition of each approval information has the effect of changing the content of the* *document, the DACs of the original document must be modified.* Col 6, line 50) Note that Petrogiannis' 660 Claim 40 and subsequent claims, which describe the inclusion of pre-approved documents into a subsequent master document allows for no modifications as does, for example, do the claims 14-25 referring to the approval of a single document (e.g. Petrogiannis' 660 Claim 14 in Col 11, line 25). Applicant's application is for the handling of multiple documents (a cover document and subdocuments).

Therefore applicant submits that claims 16, 17 and 18 are allowable over the cited references and solicits reconsideration and allowance.

Claim Rejections – 35 USC § 103

In all the discussions in the rejection of claims under 103, Petrogiannis' 632 is claimed to teach a method of approval signatures. There is no reference in Petrogiannis' 632 to approval signatures or any reference to a user approval process, either in the preferred embodiment of the patent or in the claims. As discussed previously, the approval signature is specified in Section 0016 to be a digital signature which has a common and legal meaning including recognition of the signer's private key. A DAC is "a code assigned to a particular document that uniquely describes the contents of that document" (Petrogiannis' 632 Col 2, line 65) and therefore is document specific with no reference to the signer's private key. **A DAC is therefore not a digital signature or an approval.** As there is no reference to a digital signature or approval methodology in Petrogiannis' 632, it is not from the field of electronic signature management. Therefore Petrogiannis' 632 and Petrogiannis' 660 are not from the same field of endeavor of electronic signature management.

Regarding Claim 12, Petrogiannis' 632 does not teach a method of creating a hierarchy of subdocuments since, as explained above, all references are to a document in the singular and the invention is directed to a method of creating authenticated copies of that single document. The reference in Petrogiannis' 632 to linked documents, e.g. in Claim 1(d)(vii), is the linking of the DAC of a reproduction of the master document, perhaps in a different format, to the original of that master document. This is differentiated in Applicant's application where the subdocuments are different from the cover document and imply a true hierarchy of unique documents.

The multiple documents discussed in Petrogiannis' 632 are identical authenticated copies of the master document, with perhaps only the format changed. All claims in Petrogiannis' 632 are dependent on claim 1 which specifies one electronic master document. In contrast, Applicant's claim 12 specifies subdocuments. The term "composite subdocuments" is included as a defined term in paragraph 0016 as follows:

"The term "subdocument" is applied to a collection within the cover document of text, video, audio, graphical or pictorial data, or a mixture of these data forms, that is to be given a digital signature.

Paragraph 16 also defines the "subdocument object" as the representation of the separate subdocument for manipulation in the cover document.

While the subdocument can be displayed within the cover document, it is clearly a separately created and independent object as can be seen in FIG 2 (100) (where the cover document is created), FIG 2 (102) (where the arrow entering this block is labeled "Create a subdocument"), FIG 2 (103) (create an embedded document). FIG 3 repeats this by specifying in (200) the creation of a cover document and a separate creation of a subdocument in (201). This is further repeated in FIG 4 where (300) specifies the creation of a cover document, (302) is entered by the creation of a subdocument, and (302) specifies the creation within the cover document of a reserved area for the separate subdocument.

Paragraph 41 in Applicant's patent application clearly states that "it is within the scope of this invention to maintain the master copy of the subdocument as an embedded or external object", in which case "access to the subdocument is still through the subdocument in order to protect the subdocument from alteration". Clearly the subdocument is an independent object and not a reserved section of the cover document. The cover document is created for the defined manipulation of these independent objects.

As shown previously, Petrogiannis' 660 deals with the access to a single document by multiple approvers, and is fundamentally different in design from Applicant's application which involves the linking of multiple approvers through multiple documents linked to a single cover document. Petrogiannis' 660 in Col 9, lines 14-30 describe the process of combining multiple pre-approved documents with no discussion of the methodology for obtaining the approval. (*With this method, separate documents are approved by the user, with separate approvals generated for each document.* Col 9, line 15) As described and shown in Fig 5, first the individual documents are individually created and individually signed. The method of accessing and editing subdocuments are not addressed as can be seen in FIG 5 which starts with the approval of electronic documents, and no editing should be available without invalidation of the electronic signature. Line 14 specifies "another option available to users is to approve multiple separate documents and *then* have them merged into one singe approved document." "Each approved document can be *subsequently* incorporated into a master document." (Emphasis added.) Claim 40 of Petrogiannis' 660 states in A that *each* document that is to be approved be submitted to the approving entity with no coordination specified, and then in B a master document is then generated and in D the preapproved individual documents is merged into the master document.

In contrast, Applicant's patent application the protected cover document is first created. As described in Section 0038, the cover document is protected by limiting user access, as opposed to Petrogiannis' 660 specifying for the master document a DAC. In Applicant's application the cover document serves as a container for references to the subdocuments, which are created, edited and accessed through the cover document. Access to the subdocument is controlled by the cover document and approvals coordinated in the cover document. There is no requirement the subdocument be merged into the cover document. As described in Paragraph 39, access to subdocuments may be allowed for automatic destroying of the digital signatures to allow editing and resigning or prohibiting access if the digital signature is to be preserved. This flexibility is not available under Petrogiannis' 660. In Applicant's application the approval is through a digital signature embedded in the cover document referencing a subdocument.

A major differentiation is the order of document creation, as can be seen by comparing Applicant's FIG 2 to Petrogiannis' 660 FIG 5, FIG 5A and FIG 5B. Applicant's application is designed for controlled forms, where a predesigned cover letter is first created and distributed. The users use this cover document, which they cannot alter, to create subdocuments and to control the access, editing, commenting and approval of the subdocuments. Petrogiannis' 660 claim 40 is designed to assemble previously approved documents into a master document where subsequent alterations can be detected.

Therefore applicant submits that claim 12 is allowable over the cited references and solicits reconsideration and allowance.

Regarding Claim 2, Petrogiannis' 632, as described above, teaches the creation of a single document written in word processor X and storing the DAC of that document (Col 3 line 35). Our patent application teaches creating a cover document and then creating subdocuments (by embedding an object in the cover document or by creating a separate document) to be incorporated into the cover document (FIG 2). There is only one document in Petrogiannis' 632 and there are multiple linked objects or documents in our application, and those need not be text. All reference to a document, other than copies of that document, in Petrogiannis' are in the singular. In Col 3, line 1 to Col 4, line 67, Petrogiannis' 632 does not teach creating, embedding and converting new documents. Rather it teaches in Col 2, line 64 that a single document is created. Col 3, lines 1-6 allow embedding within the document relevant information relating to that document itself. This does not relate to other documents or subdocuments. Col 3, lines 9-33 relate to copies of that same document and the embedding within the main document and copies of the main document of information about the main document and copies in different formats. There is no mention of documents that are not copies of the main document. Editing is not allowed in Petrogiannis' 632 as any editing to a document will change the DAC and as is shown in Figure 1 this would result in a user alert that the document is altered and a halt to the secure reproduction that is the feature of Petrogiannis' 632.

Applicant's patent application is differentiated in that the subdocuments are meaningless if they are copies of the cover document: they must as a practical matter be different from the cover document. There is no claim in Applicant's patent application that the subdocuments are copies of the main document. Petrogiannis' 632 cannot therefore teach the creation of a cover document and the creation of subdocuments.

Petrogiannis' 660 Col 3, line 60 to Col 4, line 18 describes the allowance for the creation of authentication codes for individual sections of the single master document or the subsequent incorporation of individually approved documents into a master document with no provision within the master document for editing. Once incorporated into the master document any editing of the pre-approved documents will invalidate the DAC of the approved document. At the time of the merger of the pre-approved documents into the master document, Col 9, line 22 stated that "if the document verifies, the contents of each approved document and ADP are then extracted and securely merged into a master document". There is no provision for the changing of the "securely merged" copy. There is no reference in Petrogiannis' 660 to destroying the separately approved documents and incorporating the documents into the master document (see Claim 40). Applicant's patent application, in contrast, allows access through the cover document to the subdocuments and modification of the subdocuments.

Therefore applicant submits that claim 2 is allowable over the cited references and solicits reconsideration and allowance.

Regarding claims 4-6, these claims are subject to the preceding discussion of the failure of either Petrogiannis' patent to hint at a vertical hierarchy of more than one document. If Claims 1-3 are differentiated as indicated above, these claims must be considered.

Therefore applicant submits that claims 4, 5 and 6 are allowable over the cited references and solicits reconsideration and allowance.

Regarding claim 10, while Petrogiannis' 660 claims 5-13 does teach the use of simultaneous authentication aids as does claim 10 in Applicant's patent application, these are not independent claims but rather each are dependent on their respective claim 1. As indicated in the previous discussion, Applicant's claim 1 can be clearly differentiated from the claim 1 of Petrogiannis' 660 in that Applicant refers to multiple linked documents and Petrogiannis' 660 claim 1 refers to the authentication of a single document by multiple users. Similarly, Petrogiannis' 660 claim 19 is dependent on claim 13, which also refers to the authentication of a single document by multiple users. The limitation to a single document is not a limitation in Applicant's patent application which references subdocuments and therefore Applicant's Claim 10 does not violate all the limitations in the Petrogiannis' patent.

Therefore applicant submits that claim 10 is allowable over the cited references and solicits reconsideration and allowance.

Regarding claim 13, is rejected on the basis of the teaching in Petrogiannis' 632 of approval signature generation by means of a signature-generation program or module. There is no reference in Petrogiannis' 632 to approval signature generation or any reference to a user approval process, either in the preferred embodiment of the patent or in the claims. In particular no reference to an approval methodology can be found in Col 3, line 1 to Col 4, line 6.

Regarding claims 14-15, these are subject to the prior considerations of the rejection of claims 12-13, and should survive should those claims be allowed.

Therefore applicant submits that claims 14 and 15 are allowable over the cited references and solicits reconsideration and allowance.

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I certify that on the date below I will fax this communication, and attachments if any, to Group of the Patent and Trademark Office at the following number: 703-872-9306.

Date: December 19, 2007

Inventor's Signature: Joseph E. Dryer